

INDIANA DEPARTMENT  
OF  
HOMELAND SECURITY  
FIRE INVESTIGATOR  
SAMPLE TEST

1. The purpose of an interview is to gather:

- A. evidence and alibis.
- B. useful and accurate information.
- C. photographs.
- D. confessions and alibis.

2. **Directions:** First, read the following statements regarding chain of custody; then, select your answer from Alternatives A-D.

Statement 1: An evidence log is a complete list of all items of evidence recovered from a fire scene.

Statement 2: Items of evidence corresponding to the evidence log can be packaged, labeled or tagged.

Statement 3: Each person recovering evidence items must make their own entries into the log.

- A. All three statements are true.
- B. Statement 1 is true; statements 2 and 3 are false.
- C. Statements 1 and 2 are true; statement 3 is false.
- D. Statements 2 and 3 are true; statement 1 is false.

3. In which of the following ways does interior finish contribute to a fire?

- A. It affects the rate of fire buildup to a flashover condition.
- B. It may contribute to fire extension through flame spread over its surface.
- C. It may add to the intensity of a fire by contributing additional fuel.
- D. It may produce smoke and toxic gases that can contribute to life hazard and property damage.
- E. All of the above

4. In which of the following states is a solid fuel the **most hazardous**?

- A. Powder or dusts
- B. Machine turnings or ribbons
- C. Castings
- D. All are equally dangerous.

5. The investigator must be cognizant of standing pools of water on the scene. They may contain:

- A. debris that can cause tripping and falling.
- B. dangerous objects that may cause injury.
- C. deep water that is over the head of the investigator.
- D. All of the above hazards.

6. Telephone conversations, tape recordings, radio transmissions, and commercial radio broadcasts are all examples of \_\_\_\_\_ sources.

- A. visual
- B. electronic
- C. verbal
- D. written

7. An investigator **should not** work a fire scene alone. It is recommended that fire scene investigations be conducted by the:
- A. investigator and one other person.
  - B. representatives of the insurance company.
  - C. police department crime scene team.
  - D. Both B and C are correct.
8. The heating of a steel beam that carries heat to an unexposed part of the building and starts another fire would be an example of:
- A. conduction.
  - B. radiation.
  - C. convection.
  - D. direct-flame contact.
9. An abnormal connection of low resistance between normal circuit conductors where the resistance is normally much greater is called a(n):
- A. ground-fault.
  - B. overload.
  - C. short circuit.
  - D. high resistance fault.
10. Which of the following statements **is not** a key variable that affects the validity of depth-of-char pattern analysis?
- A. Char measurements should be compared only between identical materials.
  - B. Ventilation factors influence the rate of burning.
  - C. When adjacent to ventilation source or opening, wood can exhibit deeper char.
  - D. Depth of char is a good source to determine time of burning.
11. **Directions:** First, read the statements regarding the condition of a fire victim's body; then, select your answer from alternatives A-D.

Statement 1: Rigor mortis is caused by chemical changes in muscle tissue.

Statement 2: Rigor mortis passes after 12-24 hours leaving the joints and muscles limber again.

Statement 3: Rigidity of muscles caused by exposure to fire leaves the body in the same manner as rigor mortis.

- A. Statement 1 is true; statements 2 and 3 are false.
- B. Statements 1 and 2 are true; statement 3 is false.
- C. Statement 1 is false; statements 2 and 3 are true.
- D. All three statements are true.

12. The key to the analysis of serial fire setting is knowing:
- A. whether the fire setting is repetitive or not.
  - B. that the fire setting has temporal frequency.
  - C. that a fire setter will set fire to the same types of buildings.
  - D. whether fire settings occur at different times of the day.
13. The **most predominant** service to fire investigators that a laboratory provides is the analysis of fire debris to:
- A. determine the fire load.
  - B. identify specific items.
  - C. identify suspected volatile accelerants.
  - D. determine a material's burning characteristics.
14. Spoliation of evidence:
- A. cannot be eliminated.
  - B. is not a concern of a public fire investigator.
  - C. can be eliminated by the proper handling of evidence and proper notification before destruction or disposal.
  - D. can be eliminated by photographing all evidence.
15. During an interview with a witness, the preferred method of documenting information obtained in the interview is:
- A. note taking.
  - B. memorization.
  - C. a signed written statement.
  - D. a tape recording.
16. The upper and lower concentrations of a vapor that will produce a flame at a given pressure and temperature are called:
- A. flash points.
  - B. vapor densities.
  - C. flammable and explosive limits.
  - D. burning points.
17. The recommended container for the collection of liquid and solid accelerant evidence is a:
- A. sealable plastic bag.
  - B. clean used paint can.
  - C. clean metal can with a tight-fitting lid.
  - D. mason jar with a rubber seal.

18. As a general rule, anything that looks out of place should be checked by the investigator. Evidence collection should be **guided** by the principle that:
- A. it is easier to disregard collected items that prove to be unrelated than to recover important items that were left behind.
  - B. if it lies within the fire scene, collect and document it within 72 hours.
  - C. the investigator should only evaluate and document the scene.
  - D. if you cannot prove an item is related, it should not be collected.
19. The State Fire Marshal's Office maintains public records regarding:
- A. fire incident databases and fire investigation activities.
  - B. fire investigation activities and licensed insurance agents.
  - C. licensed insurance agents and fire incident databases.
  - D. fire investigation activities and private investigations.
20. At which stage(s) of structure fire will automatic sprinklers normally operate?
- A. Early compartment fire development stage
  - B. Full room involvement or post-flashover stage
  - C. Ceiling layer development or pre-flashover stages
  - D. Flashover stage

**Directions:** Match the aspects of an interview listed in Column A with the phrases associated with them listed in Column B.

**Column A**

**Column B**

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|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>21. Purpose of interview</p> <p>22. Preparation for the interview</p> <p>23. Documenting the interview</p> | <p>A. When and where the interview is held</p> <p>B. Tapes or written notes</p> <p>C. Gather useful and accurate information</p> <p>D. Witness with attorney</p> |
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24. Which court ruling contended that a fire investigator could offer an opinion that a fire was arson simply as a result of looking at the evidence?
- A. Daubert v. Merrell Dow Pharmaceuticals
  - B. Michigan Millers Mutual v. Benfield
  - C. U.S. v. Markum
  - D. Kumho Tire v. Carmichael
25. When photographing an appliance identified in the area of origin, photographs should be both \_\_\_\_\_ as well as \_\_\_\_\_ to show the appliance relative to the area of origin, nearest combustible material, and a readily identifiable reference point.
- |                                                            |                                                          |
|------------------------------------------------------------|----------------------------------------------------------|
| <p>A. panoramic, close-up</p> <p>C. close-up, distance</p> | <p>B. color, distant</p> <p>D. subjective, objective</p> |
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## Reference List for the Fire Investigator - 7.0

| <u>Publisher/Title</u>                                                                           | <u>Publication Code</u> |
|--------------------------------------------------------------------------------------------------|-------------------------|
| 1. NFPA1033, <i>Standard for Professional Qualifications for Fire Investigator, 2003 Edition</i> | NFPA 1033               |
| 2. NFPA, <i>Guide for Fire and Explosion Investigations, NFPA 921, 2004 Edition.</i>             | NFPA 921                |
| 3. Brady, Prentice Hall, <i>Kirk's Fire Investigation, 5th Edition.</i>                          | Kirk 5                  |
| 4. IFSTA, <i>Building Construction Related to the Fire Service, 2nd Edition.</i>                 | BCRFS 2                 |
| 5. IFSTA, <i>Fire Investigator, 1st Edition, 1st Printing.</i>                                   | IFI 1                   |